

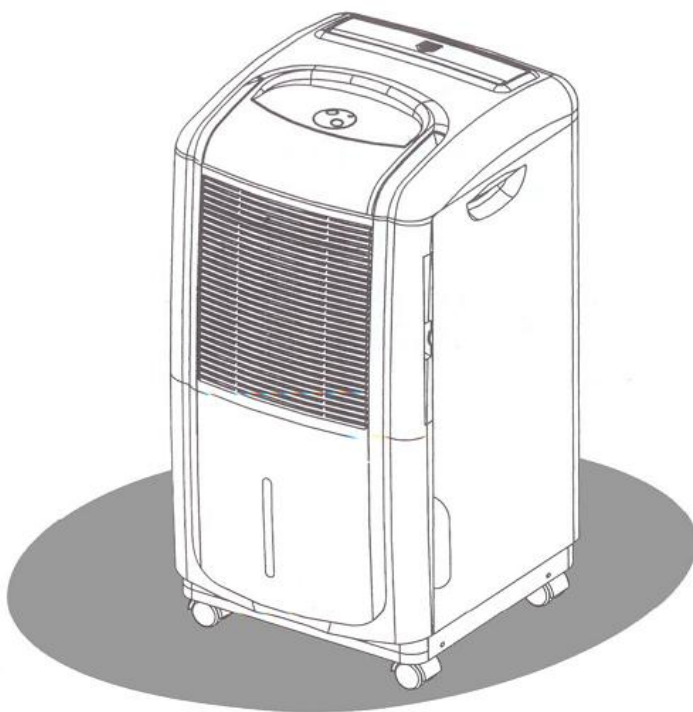


AERIAL®

Instruction manual

Dehumidifier

DH 18



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1.General advice

You have bought an air dryer made by AERIAL thus deciding for a proven quality product. If there are any questions, you will find some advice in this manual how to eliminate such difficulties as quickly as possible.

ATTENTION:

Immediately after receipt, you should check your air dryer for transport damage! In the case of damage, you should inform the forwarding agent, parcel service, post office etc. accordingly upon receipt, and make a note of it on the forwarding documents!

If a transport damage should be noticed after unpacking the equipment, please contact immediately your respective seller or specialized dealer.

Before putting your air dryer into operation for the very first time, these instructions for operation should be studied very thoroughly. Thus, you can make sure that this appliance will operate perfectly for a long period of time saving yourselves unnecessary repairs and expenses.

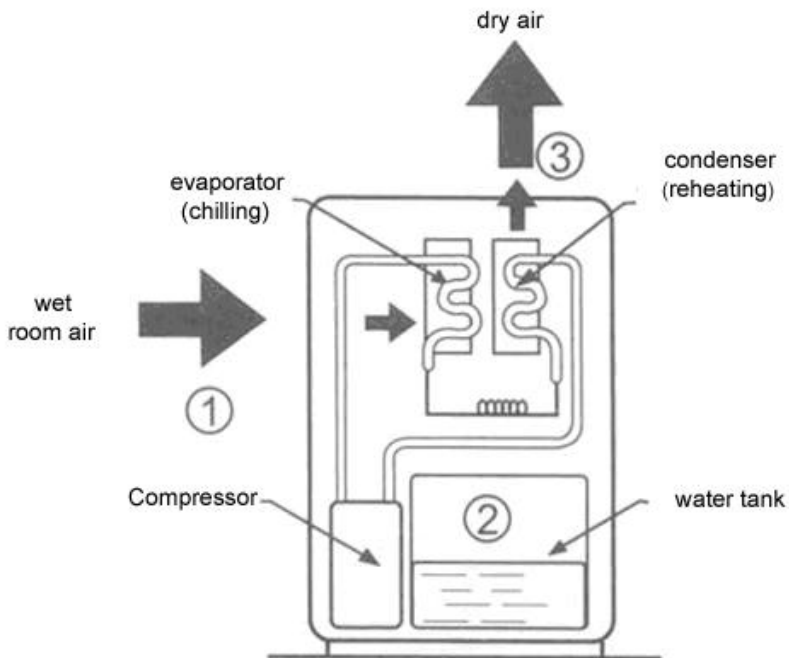
In the case of malfunction disconnect your appliance and ensure that it is not connected again by taking the mains plug out of the socket.

Please, keep the device wrapping in order to be able to send the device safe for guarantee repair. In order to save space you open simply the adhesive tape with a knife and you fold the carton.

2.Mode of functioning

The DH-air dryer is built particularly for air drying in closed heated rooms. That dehumidifier can prevent the formation of condensation, eliminate too high air humidity and hold a specific air humidity constant. The time which the dryer requires in order to achieve a specific humidity depends essentially on the environmental conditions. The attainable humidity value is equally dependent on the environmental conditions.

The DH-dehumidifier works according to the condensation principle with heat recovery. The fan (shown indicatively below) suck the moist air through a cool register (evaporator). The air becomes so far chilled under the point of condensation here, that the moist air condense as water and flows into the water-collecting tank. The chilled and dried air is warmed up at the condenser again. Through the heat pump effect, the outlet air is some degrees warmer than the sucked room air. Useful energy can conducted up to 3-fold of the electrical power consumption. The absolute moisture of air is lowered continuously by the continuous circulation of the room air through the device. The surplus moisture is removed safely and efficiently.



3. Safety

The condensation dryers DH 18 are furnished with protective devices. The devices were subjected to a safety examination. Dangers threaten in the case of operating error or abuse

- for the user.
- for the machine and other real values.
- for the efficient work of the machine.

All persons who have to do with the installation, service and maintenance of the devices must be qualified correspondingly and consider this operating manual precisely.

Using as directed

The condensation dryers are intended for the drying of air with atmospheric pressure.

Risk by accessory

Hoses for condensate removal and air filters must be fit expertly and must not take the protective devices of the condensation dryers out of operation. The control elements must always remain freely amenable.

Authorized users

The service of the condensation dryers DH 18 may only be carried out by persons, that were instructed from the operator. The user is responsible in the field of action third parties compared to.

Responsibilities for different activities on the device must of course be determined and kept. Unclear competences are a safety hazard.

The operator must make the operating instruction available for the user and make sure that the user did understand the manual.

4. Installation and transport

The DH18-series is planned for the stationary and mobile effort. During the setting up and transportation of the dehumidifier, the following items are to be considered:

- The dehumidifier must be installed so that the air can circulate without obstruction through it. The air filter and also the outlet grille must not be covered. The open space before the outlet grille and the air filter must at least conduct 1 meter.
- Before every local alternation of the device, switch off the device at the on/off-switch, pull the power plug from the socket and empty the water tank!
- The air dryer must be moved only using the provided wheels and handhold!
- The air dryer must be installed on a plane base only, as otherwise it must be secured against rolling off!
- That dehumidifier can be transported upright or laid flat! The upright transportation is to be preferred if possible.
- The appliance must be used exclusively for air drying.

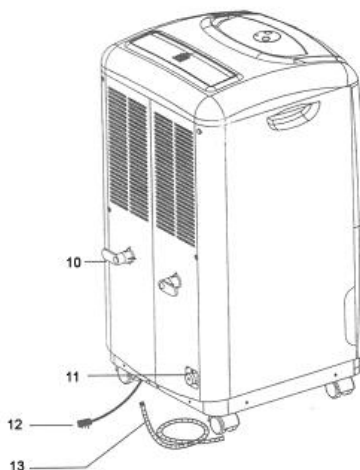
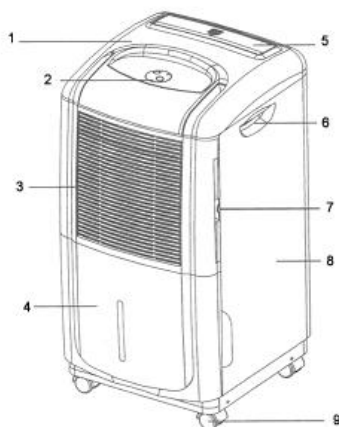
ATTENTION:

Do never pull or move the device at the power cable

5. Operation

5.1 Pictures and discription

- 1 – Cover
- 2 – Hygrostat
- 3 – Air-inlet grillet
- 4 – water tank
- 5 – Air-outlet grillet
- 6 – grip
- 7 – Air filter (easy removable to side)
- 8 – front cover
- 9 – castors (4 pcs.)
- 10 – cable winding
- 11 – condensate outlet (with stopper)
- 12 – main cable with plug
- 13 – hose



5.2 electrical connection

Before connecting the air dryer, the following items must be checked:

- Does the mains voltage coincide with the voltage of the appliance?
- Adequate fusing of socket and supply system?
- Has the required residual-current-operated circuitbreaker (r.c.c.b) been installed in case of swimming baths?
- If a cable drum is used: has it been unwound completely?
- Is the appliance connector suitable for the building socket?
- Is the socket provided with a earth connection?

ATTENTION:

Before putting the air dryer into operation, the technical data of the appliance should be compared to the conditions prevailing in the room of installation!

5.3 Putting into operation

ATTENTION:

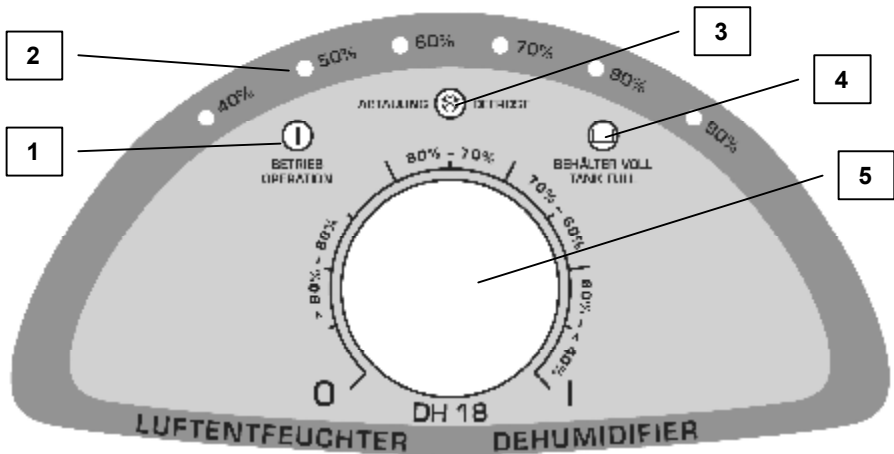
Before putting the air dryer into operation, the instruction manual should be studied carefully. Thus, damages by a false or inappropriate operation as well as by inadequate environmental conditions can be avoided.

For using the air dryer, please proceed as follows:

- After having been transported, the air dryer should rest for about 15 min. During this period of time, the oil inside the refrigerating system, that was foamed during transport will return into the compressor. We recommend this procedure since it extends the service life of the compressor.
- Put the plug into the socket. The green neon lights up.

- Check whether the bucket is placed in the unit or a drain hose has been fastened and laid appropriately.(refer to 5.7)
- Set the required humidity value at the hygrostat (refer to 5.5).
- If the existing humidity is higher than the set value, the air dryer will start to operate.
If the existing humidity is lower than the set value, the air dryer will not start to operate.
- The fan starts first and the compressor will start after approx. 3 Minutes.

5.4 Operation panel



- 1 – **neon green**: Unit is ready for operating / Voltage is connected
- 2 – **chart with neons**: Shows the approx. Humidity of the ambient air (in % r.h.)
- 3 – **neon green**: Dryer is in defrost mode (fan is still working / compressor does not work)
- 4 – **neon red**: tank is full
- 5 - **Hygrostat** with knob and chart (refer to 5.5)

5.5 Hygrostat control

The air dryers of the DH-series dispose of a hygrostat for setting the required humidity value. This hygrostat is located at the rear side of the unit, in the bucket compartment. It makes that the air dryer cuts in as soon as the ambient humidity exceeds the preset value. If the humidity value falls below the set value, the hygrostat will switch off the complete dryer.

The hygrostat is placed in the operation panel

Pos. 0 = switched off

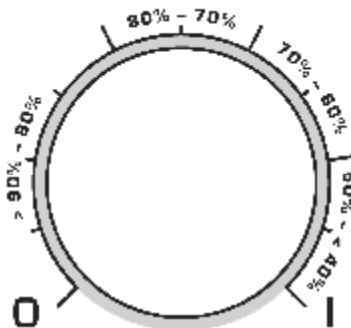
Pos. 1 = continuous working

> 90 - 80% = The dehumidifier switches off when a humidity between 80% and >90% r.h. has achieved. And switches on again when humidity is higher than > 90% r.h..

80 - 70% = The dehumidifier switches off when a humidity between 70% and 80% r.h. has achieved. And switches on again when humidity is higher than 80% r.h..

70 - 60% = The dehumidifier switches off when a humidity between 60% and 70% r.h. has achieved. And switches on again when humidity is higher than 60%....80% r.h..

60 - < 40% = The dehumidifier switches off when a humidity between < 40% and 60% r.h. has achieved. And switches on again when humidity is higher than < 40%....60% r.h..



The smooth setting option of the hygrostat makes a very convenient humidity control possible for you. If very precise values are requested, you should match the hygrostat with the information on a precise hygrometer.

Please consider:

Humidity values of a minimum of 40 % - 45 % r.h. can be achieved with a condensation dryer. An adsorption dryer is to be employed if lower values are required.

For this purpose, ask your technical consultant.

Optimal climate:

For living rooms, environmental conditions of 20°-25°C and 50 - 60 % r.h. are recommended.

For building drying, the hygrostat becomes turned at continues running (POS. I). In the case of the drying rooms with wood equipment (e.g. floors) or paintings, antiques and similar things should not be fallen below a humidity of 55%. Ask your technical consultant in the case of special applications.

5.6 Air flow

The dehumidifier type DH 18 sucks room air through the air inlet grit (refer to 5.1 – Pos. 3)(with air filter). The dry air comes out of the dehumidifier through the outlet grits at the opposite site of the dryer and also on the top of the dryer (refer to 5.1 – Pos. 5). The outlet grit on the top of the dehumidifier (refer to 5.1 – Pos. 5) can be turned in different positions. Thus a part of the dry air is steered purposefully in a requested direction.

5.7 Condensate outlet

The dehumidifiers DH 18 are provided with water collecting bucket (4 ltr) and connection for hose 12 mm.

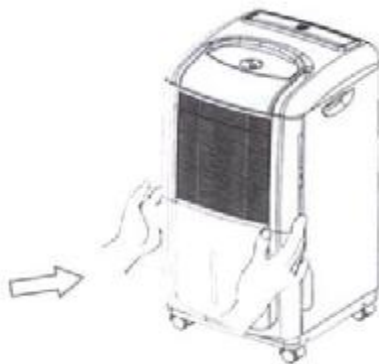
The water tank (refer to 5.1 – Pos. 4) is placed below the air inlet grit (Abs. 5.1 – Pos. 3).

By a float mechanism the dryer switches off automatically when the tank is full. The red neon lights up.

To remove the tank, seize with both hands into the lateral case hollows and pull the tank forward from the dryer.

In the tank is above a black turn-up grasp, with whose you can carry the tank comfortably.

The dryer switches off with withdrawal of the tank and switches on automatically, if the empty tank is placed back into the equipment. Make sure that the carrying handle is folded correctly back into the tank.

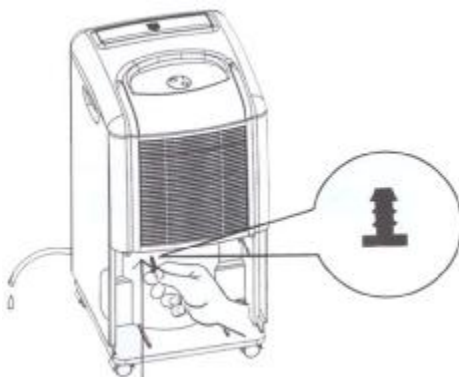


Optionally a hose 12 mm can be installed, in order to lead the condensate directly into a discharge. Remove the stopper at the back of the dryer (refer to 5.1 – Pos. 11) and attach at the open connecting pieces a hose 12 mm.

Guide the hose with slope of the device into the drain away (at least 5 cm slope per meters).

Make sure that the hose is fixed at both ends.

Put the taken stopper into the opening left above in the bucket compartment. (see sketch)



ATTENTION:

If you remove the drain hose, the hose connector must be locked again with the stopper!

Make sure that the condensate can always be handled safely.

5.8 Automatic defrosting

During air drying, ice may form at the evaporator. The volume of ice depends on the ambient conditions prevailing in the room to be dried. The air dryer is equipped with an automatic air-defroster. It ensures that, depending on the extent of ice formation, the appliance will be defrosted automatically according to the following principle:

- A temperature sensor measures the condition existing in a critical area of the evaporator.
- If a temperature of -1°C has been measured for at least 5 minutes, it passes a signal on to the defrost-system. During the defrost mode the fan keeps running, the compressor stands still. The ice on the evaporator is defrosted with the help of the ambient air. Depending upon ambient temperature this takes more or less time. After conclusion of the defrost mode (at the latest after 10 minutes) the dryer begins to work again in the normal dehumidifying mode.

6. Operating conditions

DH-condensation dryers are suitable for the effort in heated residential buildings, garages and storerooms. DH-condensation dryers work problem-free at the temperature range of $+15$ to $+32^{\circ}\text{C}$ and in the case of relative humidity from 40% to 95% r.h. .

The use in rooms with higher temperatures ($> +32^{\circ}\text{C}$) leads to disadvantages at the compressor. The use in rooms with lower temperatures ($< +15^{\circ}\text{C}$) is ineffective and can lead to icing.

Also the storage of the dehumidifier at inadmissible temperature conditions can lead to damages / problems while immediate switch-on. Therefore, make possible short time for adaptation for the device before switch-on.

ATTENTION:

The appliance must not be used under the following conditions:

- *in rooms of potentially explosive atmosphere*
- *in rooms of aggressive atmospheres, for example ammonia and wood acid*
- *In rooms with water which shows a pH-value outside of 7,0 to 7,4. **Remark:** In the case of lower pH-value, corrosion occurs at all metals and damages occurs at mortar containing materials. In the case of higher pH-value, it comes to irritation of skin and eye mucous membrane and extreme lime deposits.*
- *In rooms with salt or salty liquids. Salt content $>1\%$ (also sole baths).*
- *In rooms of air treated with ozone*
- *in rooms featuring a high concentration of solvents*
- *in rooms of an extremely high ratio of dust.*

In the case of doubtful operating conditions it is recommended to contact the Technical Department of Messrs. AERIAL or a specialized dealer.

Using a DH-air dryer under inadequate operating conditions will entail that the warranty becomes null and void.

7. Technical data

Among other things, many different components which are installed in the condensation dryer decide on the capacity of the device. Since these components can never be completely identical, in accordance to DIN EN 810 the capacity may deviate up to 5% of specified capacity.

Generell:

Operational range: +15°C up to + 32°C / 40% r.h. up to 95% r.h.
Protection class: IP X0
Voltage: 230 V / 50 Hz

Air volume: 160 cbm/h
Power consumption: max. 390 Watts
Noise level: 46 dB(A) in 1 mtr. distance
refrigerant: R 134a
capacity: 18 l/24h at 30°C / 80% r.h. (390 Watt)
10,5 l/24h at 27°C / 60% r.h. (350 Watt)
7,2 l/24h at 20°C / 60% r.h. (300 Watt)

8. Service & Maintenance

ATTENTION

When performing any repair or maintenance, the general safety rules and provisions must be adhered to!

In order to guarantee a troublefree function of the dryer the device should be cleaned regularly. The following procedure is instead recommended:

- Switch OFF the air dryer
- Disconnect mains cable
- Remove filter for cleaning. Filter can be washed under flowing water.
- Visual inspection: check tank, hose connector and attached hose for blockage, if necessary change it
- Clean case with moist cloth. Do not use aggressive Detergent
- Insert new or cleaned filter
- Put main plug into the socket
- Switch on dehumidifier.

This cleaning is without fail regularly required!

No other maintenance work is required for the air dryer.

9. Trouble shooting

Assign that dehumidifier a putative defect on, please, first check the following points. If this should provide no relief, please contact your technical consultant.

1) The dehumidifier shows a bad or no drying capacity

- The humidity is lower than 40% r.h. or the temperature in that room is lower than +15°C. The using of the dryer is uneconomical in the case of these conditions. It is recommended to disconnect the dryer. **Tipp:** Put the built-in hygrostat (refer to 5.5) on an attainable value (e.g. approx. 50%r.F.), with it the dryer punctually may switch off.
- The air filter (refer to 5.1 – Pos.7) is soiled. The dryer does not receive air sufficiently. Clean the filter and/or install a new one. A soiled air filter can in the long run lead to disadvantages at the dryer. **Tipp:** Control the filter regularly.

2) The compressor of the dehumidifier does not work.

- The dryer has just being switched on (perhaps because the humidity increased). In that case, only the fan starts first. After 3 Minutes the compressor will also start.
- The dryer is in defrost mode (refer to 5.8). In that case, the fan works and the green neon in the operation panel (refer to 5.4 – Pos.3) lights up. After 10 Minutes the dryer starts complete working again.

3) The complete dryer is out of operation. Fan and compressor does not run.

- Is the unit supplied with voltage? The green neon “operation” (refer to 5.4 – Pos1) must light up. Check the main cable, an additional cable, the socket and the main fuse.
- The humidity value adjusted at the hygrostat is achieved. The unit will start again after exceeding the adjusted humidity.
- Water collecting bucket is full: The red neon lights up (refer to 5.4 – Pos. 4). Empty the water bucket and put it back into the unit. (refer to 5.6)

4) Strong icing up at the evaporator.

- The ambient temperature is too low (< +15°C). Put the dryer into a room with min. +15°C room temperature and wait until complete ice is defrosted. Switch on the unit again (in that room with min. +15°C) and let work for approx 3 hours. If there is icing up again, please contact your dealer. Otherwise make sure that the unit is only been used in rooms with more than +15°C. Also the storage of the dehumidifier at inadmissible temperature conditions can lead to damages / problems while immediate switch-on.

5) The humidity adjusted at the hygrostat does not become achieved and/or the device does not switch off automatic.:

- Is the hygrostat adjusted on a value lower than 40 – 45% r.h.? Humidity values with a minimum of 40 % - 45 % r.h. can be achieved with a condensation dryer. Adjust the hygrostat to a reachable value.
- Is the unit with enough capacity for your application? The air changing, number of the persons in the room and open water surfaces decide on the humidity burden in the room. Let calculate the necessary capacity from your dealer
- Is there a lot of water in the walls or the floor? In that case the dryer needs some time to remove that water and to achieve an acceptable humidity in that room.

ATTENTION

The appliance must be repaired by trained and expert personnel only. In the case of interventions by unauthorized people, any and all warranty claims shall become null and void!

If you have any questions regarding defects and malfunctions of AERIAL-air dryers we recommend get in touch with your supplier.

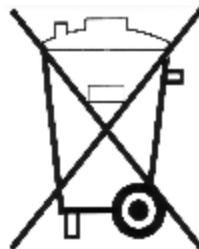
The producer AERIAL GmbH you reach under 0049-40-526879-0 or www.aerial.de

10.Disposal

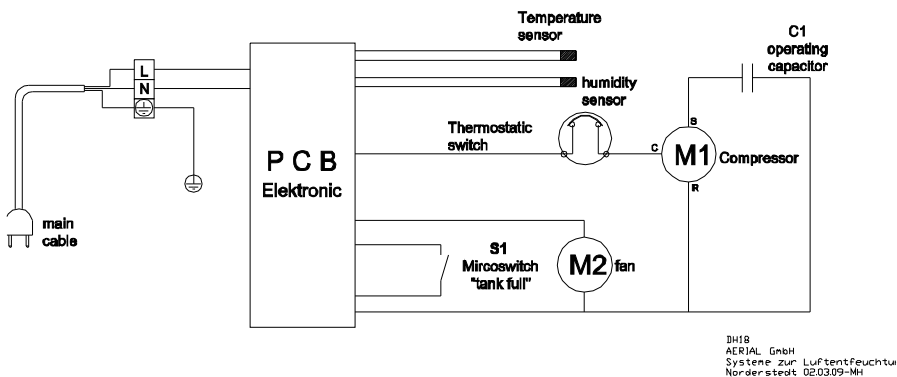
Please do not dispose this unit with the domestic waste and please do not dispose this unit in the environment.

We dispose this unit for you – free of charge and environment-friendly. Please contact us!

Alternative your local waste management enterprise takes this unit for environment-friendly disposal.



11.electrical circuit



12.Manufacturer's declaration

(EU-directive 2006/42/EG)
(EU-directive 2004/108/EG)
(EU-directive 2006/95/EG)

importer: AERIAL GmbH - Systeme zur Luftbehandlung
Oststraße 128, D-22844 Norderstedt

Product description: dehumidifier type DH 18

capacity: 18 l/day

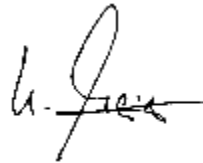
The product described above is an ambient air dryer ready for connection.

Related standards:	EN ISO 12100	Safety of Machinery
	EN 50081-1/92	Electromagnetic Compatibility (EMC) Basic Specification "Emitted Interference"
	EN 50082-1/97	Electromagnetic Compatibility (EMC) Basic Specification "Emitted Interference"
	EN 60335-2-40/98	Safety of electric appliances for domestic use and similar purposes

In the case of changings at the unit this manufacturer's declaration becomes void.

Norderstedt, 02.01.2011

sign / stamp



Karsten Meier – General Manager

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